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| APPLICATION NO.      | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|----------------------|-------------|----------------------|---------------------|------------------|
| 10/549,449           | 07/19/2006  | Magnus Johansson     | 1505-1028-1         | 5502             |
| 466                  | 7590        | 06/25/2009           | EXAMINER            |                  |
| YOUNG & THOMPSON     |             |                      | TORRES, JUAN A      |                  |
| 209 Madison Street   |             |                      |                     |                  |
| Suite 500            |             |                      | ART UNIT            | PAPER NUMBER     |
| ALEXANDRIA, VA 22314 |             |                      | 2611                |                  |
|                      |             |                      | MAIL DATE           | DELIVERY MODE    |
|                      |             |                      | 06/25/2009          | PAPER            |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/549,449             | JOHANSSON, MAGNUS   |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | JUAN A. TORRES         | 2611                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 19 July 2006.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-29 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 10 and 11 is/are rejected.  
 7) Claim(s) 1-9 and 12-29 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 19 July 2006 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

|  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>09/14/2005</u> .  | 6) <input type="checkbox"/> Other: _____ .                        |

## **DETAILED ACTION**

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

The information disclosure statement (IDS) submitted on 09/14/2005 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Drawings***

The drawings are objected to because:

- a) Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated (see specification page 1 lines 12-17).  
See MPEP § 608.02(g).
- b) Figure 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated (see specification page 1 lines 17-26).  
See MPEP § 608.02(g).
- c) The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "501" and "502" (see figure 5a).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate

prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

The disclosure is objected to because of the following informalities:

- a) The recitation in the abstract "computer program product" seems to be improper, because a computer program product has no set definition (see rejection below); it is suggested to be changed to "computer-readable medium"
- b) The recitation in page 4 lines 1-2 "The above stated object is achieved by means of arrangements according to claims 12, 13 and 21, by means of computer program products according to claims 10 and 11 and by means of methods according to claims 1 and 2" seems to be improper because reference to claim number in the specification is not appropriate because

claims could be changed or deleted during the prosecution of the case; it is suggested to delete this paragraph.

Appropriate correction is required.

***Claim Objections***

**Examiner NOTE:**

In an intention to advance the prosecution of the case, some of 35 USC § 112 2<sup>nd</sup> paragraph problems have been indicated in the present Office action as a “Claim Objections”. If the objections are not addressed properly the objections may be presented as a proper 35 USC § 112 rejection in future Office actions.

Claims 1-29 objected to because of the following informalities:

- a) Regarding claim 1, the recitation in line 1 of claim 1 “Method” seems to be improper, because it seems to be improperly constructed (see claim 10 line 1); it is suggested to be changed to “A method”
- b) Regarding claims 2-11, they are objected because they depend directly or indirectly from claim 1 and claim 1 is objected.
- c) Regarding claims 2-9, the recitation in line 1 of claims 2-9 “Method” seems to be improper, because it seems to be improperly constructed (see claim 10 line 1); it is suggested to be changed to “The method”
- d) Regarding claim 1, the recitation in lines 10 and 13 “bit stream” seems to be improper, because it seems to be improperly constructed (see claim 1 line 2 and 35 USC § 112 second paragraph, lack of antecedent basic); it is suggested to be changed to “modulated bit stream”

- e) Regarding claim 2, the recitation in lines 2 (twice), 7, 8 and 11 “bit stream” seems to be improper, because it seems to be improperly constructed (see claim 1 line 2 and 35 USC § 112 second paragraph, lack of antecedent basic); it is suggested to be changed to “modulated bit stream”
- f) Regarding claim 3, the recitation in line 2 “bit stream” seems to be improper, because it seems to be improperly constructed (see claim 1 line 2 and 35 USC § 112 second paragraph, lack of antecedent basic); it is suggested to be changed to “modulated bit stream”
- g) Regarding claim 12, the recitation in lines 8 and 11 “bit stream” seems to be improper, because it seems to be improperly constructed (see claim 1 line 2 and 35 USC § 112 second paragraph, lack of antecedent basic); it is suggested to be changed to “modulated bit stream”
- h) Regarding claim 13, the recitation in lines 2, 3, 7, 8-9, and 10 “bit stream” seems to be improper, because it seems to be improperly constructed (see claim 1 line 2 and 35 USC § 112 second paragraph, lack of antecedent basic); it is suggested to be changed to “modulated bit stream”
- i) Regarding claim 14, the recitation in lines 2-3 “bit stream” seems to be improper, because it seems to be improperly constructed (see claim 1 line 2 and 35 USC § 112 second paragraph, lack of antecedent basic); it is suggested to be changed to “modulated bit stream”
- j) Regarding claim 22, the recitation in lines 1-2 “bit stream” seems to be improper, because it seems to be improperly constructed (see claim 1 line

2 and 35 USC § 112 second paragraph, lack of antecedent basic); it is suggested to be changed to “modulated bit stream”

k) Regarding claim 5, the recitation in line 4 of claim 5 “i.e.,” seems to be improper, because it seems to be improperly constructed (the phrase "for example" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d)); it is suggested to be deleted

l) Regarding claim 9, the recitation in line 2 of claim 9 “VDSL” seems to be improper, because it seems to be improperly constructed because this acronym has not been introduced previously in the claims; it is suggested to be changed to “Very high data rate Digital Subscriber Line (VDSL)”

m) Regarding claim 12, the recitation in line 1 of claim 12 “Transmitter” seems to be improper, because it seems to be improperly constructed (see claim 10 line 1); it is suggested to be changed to “A Transmitter”

n) Regarding claim 12, the recitation in lines 1-14 of claim 12 “Transmitter (400) in a digital communication system comprising means for transmitting a modulated bit stream comprising user data and dummy data, wherein the modulated user data is represented by symbols from a symbol alphabet M, the modulated dummy data is represented by a symbol  $m_0$ , characterised by means (401, 402) for generating symbols  $q_0, \dots, q_j$  randomly from a predefined symbol alphabet Q being a subset of M, means for scrambling the bit stream by performing bitwise modulo-2

addition between the modulated bit stream and the randomly generated symbols  $q_0, \dots, q_j$  from  $Q$ , and means for transmitting said scrambled bit stream, wherein the predefined symbol alphabet  $Q$  is defined so that the transmit power level of the dummy data is substantially lower than the transmit power level of the user data" seems to be improper, because it seems to be improperly constructed (see claim 1); it is suggested to be changed to: "A Transmitter (400) in a digital communication system comprising means for transmitting a modulated bit stream comprising user data and dummy data, wherein the modulated user data is represented by symbols from a symbol alphabet  $M$ , the modulated dummy data is represented by a symbol  $m_0$ , characterised by:

- (a) means (401, 402) for generating symbols  $q_0, \dots, q_j$  randomly from a predefined symbol alphabet  $Q$  being a subset of  $M$ ,
- (b) means for scrambling the bit stream by performing bitwise modulo-2 addition between the modulated bit stream and the randomly generated symbols  $q_0, \dots, q_j$  from  $Q$ , and
- (c) means for transmitting said scrambled bit stream, wherein the predefined symbol alphabet  $Q$  is defined so that the transmit power level of the dummy data is substantially lower than the transmit power level of the user data" See also 35 U.S.C. § 112, second paragraph" The claim(s) are narrative in form and replete with indefinite and functional or

operational language. The structure which goes to make up the device must be clearly and positively specified. The structure must be organized and correlated in such a manner as to present a complete operative device. The claim(s) must be in one sentence form only."

- o) Regarding claims 13-29, they are objected because they depend directly or indirectly from claim 12 and claim 12 is objected.
- p) Regarding claim 13, the recitation in line 1 of claim 13 "Receiver" seems to be improper, because it seems to be improperly constructed (see claim 10 line 1); it is suggested to be changed to "A Receiver"
- q) Regarding claim 13, the recitation in line 4 of claim 13 "a transmitter in accordance with claim 10" seems to be improper, because it seems to be improperly constructed (claim 10 is a method); it is suggested to be changed to "a transmitter in accordance with claim 12"
- r) Regarding claims 14-21 and 29, the recitation in line 1 of claims 14-21 and 29 "Transmitter" seems to be improper, because it seems to be improperly constructed (see claim 10 line 1); it is suggested to be changed to "The transmitter"
- s) Regarding claim 16, the recitation in line 1 of claim 16 "transmitter (400) or receiver (404) according to claim 12" seems to be improper, because it seems to be improperly constructed (claim 12 is a transmitter, see claim

14); it is suggested to be changed to “transmitter (400) according to claim 12”

t) Regarding claim 16, the recitation in line 5 of claim 16 “i.e.,” seems to be improper, because it seems to be improperly constructed (the phrase "for example" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d)); it is suggested to be deleted

u) Regarding claim 20, the recitation in line 3 of claim 20 “transmitter (400) or receiver (404)” seems to be improper, because it seems to be improperly constructed (claim 12 is a transmitter, see claim 14); it is suggested to be changed to “transmitter (400)”

v) Regarding claims 22-28, the recitation in line 1 of claims 14-21 “Receiver” seems to be improper, because it seems to be improperly constructed (see claim 10 line 1); it is suggested to be changed to “The receiver”

w) Regarding claim 24, the recitation in line 4 of claim 24 “i.e.,” seems to be improper, because it seems to be improperly constructed (the phrase "for example" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d)); it is suggested to be deleted

***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 10-11 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 10-11 are rejected because they claim data structures not claimed as embodied in computer-readable media, and data structures not claimed as embodied in computer-readable media are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer. See, e.g., Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention which permit the data structure's functionality to be realized. In contrast, a claimed computer-readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory.

"A program product" is non-statutory because the terminology "program product" alone has no set definition.

#### ***Allowable Subject Matter***

Claims 1-9 and 11-29 are allowed if the above objections are overcome.

The following is an examiner's statement of reasons for allowance: claims 1-9 and 11-29 are allowed because a comprehensive search of prior art failed to teach, either alone or in combination, in a digital communication system for transmitting a modulated bit stream comprising user data and dummy data, wherein the modulated

user data is represented by symbols from a symbol alphabet M, the modulated dummy data is represented by a symbol  $m_0$ , the method is characterised by (a) generating symbols  $q_0, \dots, q_j$  randomly from a predefined symbol alphabet Q being a subset of the symbol alphabet M, (b) scrambling the bit stream by performing bitwise modulo-2 addition between the modulated bit stream and the randomly generated symbols  $q_0, \dots, q_0$  from Q, and (c) transmitting said scrambled bit stream, wherein the predefined symbol alphabet Q is defined so that the transmit power level of the dummy data is substantially lower than the transmit power level of the user data, as the applicant has claimed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- a) Agazzi (US 6477200 B1) discloses a multi-pair gigabit Ethernet transceiver
- b) Asada (US 6553535 B1) discloses a power-efficient communication protocol
- c) Tzannes (US 6567473 B1) discloses seamlessly changing power modes in a ADSL system.

- d) Tzannes (US 6667991 B1) discloses synchronizing seamless rate adaptation Tzannes (US 6731695 B2) discloses implementing receiver transparent Q-mode
- e) Limberg (US 20050074074 A1) discloses time-dependent trellis coding for more robust digital television signals.
- f) Dent (US 6934317 B1) discloses communicating spread spectrum signals using variable signal constellations
- g) Rakib (US 6937617 B2) discloses trellis encoding data for transmission in digital data transmission systems.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUAN A. TORRES whose telephone number is (571)272-3119. The examiner can normally be reached on 8-6 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Juan Alberto Torres  
05/05/2009

/Juan A Torres/  
Primary Examiner, Art Unit 2611